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Convention

# Mission Report

Earthen architecture on the Lalibela World Heritage Site



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*Lalibela, Ethiopia*

*4 – 11 July 2010*

With the financial support of the Italian Government



Cover Photograph: View of Lalibela from Sebat Woyra (Seven Olives) Hill, July 2010

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## Abbreviations and Acronyms

<i>ARCCH</i>	Authority for Research and Conservation of Cultural Heritage
<i>AROCT</i>	Amhara Regional Office for Culture and Tourism
<i>CHDA</i>	Centre for Heritage Development in Africa
<i>Craterre-ENSAG</i>	International Centre for Earth Construction Technology
<i>EiABC</i>	Ethiopian Institute for Architecture, Building Construction and City Development
<i>ESTDP</i>	Ethiopian Sustainable Development Project
<i>LMC</i>	Lalibela Municipal Council
<i>TBD</i>	To Be Determined
<i>UNESCO</i>	United Nations Educational Scientific and Cultural Organisation
<i>WB</i>	The World Bank
<i>WHC</i>	World Heritage Centre
<i>WHEAP</i>	World Heritage Earthen Architecture Programme
<i>WHS</i>	World Heritage Site

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- Ms Yasmin Tayyab, Senior Social Development Specialist, World Bank Office, Addis Ababa

## 1. Introduction

This is a report on a mission by the consultant, Ishanlosen Odiaua, on behalf of the UNESCO-World Heritage Centre, to the world heritage site of the Rock-Hewn Churches of Lalibela, Ethiopia, from 4 – 10 July 2010. The mission was carried out under the auspices of its World Heritage Earthen Architecture Programme (WHEAP).

The WHEAP is a programme approved by the World Heritage Committee, in 2001, for the development of policies for the conservation, revitalisation and valorisation of earthen architectural properties as well as to build capacity of the regional, national and site management authorities and technical experts. Its overall aim is to develop appropriate methods and techniques for improving the conservation and the management of the different typologies of earthen architecture. Specifically it also aims to develop appropriate methods and techniques for improving the sustainability of the conservation and management of the different types of earthen architectural heritage inscribed on the World Heritage List and/or included in States Parties' Tentative Lists. The implementation of the programme is planned in four phases – one preparatory and three implementation phases – with each implementation phase focusing on two regions or sub-regions. Under the first implementation phase of the programme (2009 – 2011), the focus is on Africa and the Arab states. The programme is implemented through pilot projects that serve as a basis for training and other activities aimed at a worldwide dissemination of the identified best practices. Lalibela is one of the three selected African sites, for the implementation of pilot projects under this first regional phase.

### 1.1 Mission objective

The purpose of the mission was to evaluate the possibility that earth architecture offers in the enhancement of the general surrounding of the World Heritage property. Specifically, the objective of the preparatory mission was to study the potential of earth architecture for the effective conservation and urban management of the World Heritage property at Lalibela.

The terms of reference of the mission were:

1. To study the characteristics of traditional earth houses, and analyse their state of conservation;
2. To visit the World Heritage property and its buffer zone in order to get a better idea of its urban characteristics;
3. To attend the workshop on the conservation and management of Lalibela, from 6 – 8 July, 2010 in Lalibela and make a presentation on the objective and strategy of the mission;
4. To meet with local authorities in charge of the administration and management of Lalibela;
5. To propose a series of recommendations aimed at contributing to its conservation and enhancement as an important part of the World Heritage property of Lalibela;
6. To prepare a detailed report on the results of the mission undertaken with recommendations on further work.

### 1.2 Mission Implementation

The mission involved (for detailed mission schedule see Annex 2):

- Preparatory background study of the documents furnished by the UNESCO-WHC, as well as World Bank (WB) documents on past and current WB projects in Lalibela, in particular, and Ethiopia in general.
- A mission to Ethiopia, from 4 – 10 July 2010. The visit to Lalibela took place from 6 – 9 July.
- Participation at the WHC site management planning workshop which took place in Lalibela

from 6 – 8 July provided an opportunity to listen in to the ongoing discussions on the issues concerning the Lalibela World Heritage site in general. It also provided an opportunity to meet representatives of the various stakeholders in the area.

- A tour around the general site, within the context of the aforementioned workshop enabled a better understanding of the contexts that had been discussed earlier during the workshop. This also involved meeting with the local population, municipal authorities. Further visits to the town and outlying areas, were also made, outside the framework of the workshop.
- Meeting in Addis with staff of the national institution, Authority for Research and Conservation of Cultural Heritage (ARCCH) who also provided some complementary sources from their archives.

Follow up communication was also necessary after the time on the field and this was done through phone calls and electronic mails. This included communication with the World Bank social specialist for the Ethiopian Sustainable Tourism Development, Ms Yasmin Tayyab.

## 2. Results

Lalibela was inscribed on the World Heritage list 32 years ago and has undergone intense change in the intervening period. At the time of inscription in 1978, the property description included the eleven rock-hewn churches and *“the vernacular architecture of Lalibela [that] is of a two-storey ‘tukul’ (round house) constructed with the characteristic red local stone. This traditional architecture is rapidly disappearing, but should be conserved as a proper surrounding to the churches”*.<sup>1</sup>

The ICOMOS site evaluation further goes on to state, under criterion III that *“the Lalibela ensemble is an exceptional witness of medieval and post-medieval Ethiopia that conserves, besides the eleven churches listed in the proposal, extensive remains of the traditional dwelling – two-storey circular houses with internal staircases and thatch roofs – and it is essential to protect this to the same level as the rocky elements of the religious architecture”*<sup>2</sup>.

The mission noted that there was no clear demarcation of the core and buffer zones, as this was a work in progress awaiting finalisation and passage into law. This is one of the priorities of the management planning committee. The mission however was given access to a report in which the features of the core zone are outlined as:

- The rock-hewn churches
- The residential neighbourhoods of Hadish Adi and Sebat Weira
- The sacred mountains of Debre Zeit and Debre Tabor
- The orthodox Christian cemetery and
- The monastery and other outlying areas. (WUB Consult<sup>3</sup> (a), 2010)

For the purpose of this report, we refer to the site (core zone) as that which includes the eleven churches and the surrounding settlement of Hadish Adi. This is because this is the oldest residential area and it also has the highest concentration of traditional buildings.

<sup>1</sup> Nomination file, Rock-Hewn Churches Lalibela, UNESCO, 1978

<sup>2</sup> “L'ensemble de Lalibela offre un témoignage exceptionnel sur la civilisation de l'Ethiopie médiévale et post-médiévale en conservant, à coté des onze églises énumérées dans la proposition, des vestiges étendus d'habitat traditionnel – des maisons circulaires à deux niveaux avec escalier intérieur et couverture de chaume - qu'il est indispensable de protéger et de conserver au même titre que les éléments rupestres d'architecture religieuse.” ICOMOS evaluation report on the Rock-Hewn Churches of Lalibela, 1978

<sup>3</sup> WUB Consult is a consultancy firm that carried out a number of studies in Lalibela under the auspices of the ESTDP, on behalf of the Ethiopian Government





Figure 1 Part of church compound affected by first stage of resettlement programme. Note the new thatch on the remaining buildings. Dense concentration of buildings in right foreground is part of Hadish Adi village

### **2.1 Characteristics of traditional earth houses and analysis of their state of conservation**

The oldest buildings in Lalibela are in Hadish Adi, Chefregotch, Sebat Weira, May Dagm and Tecco. Of these, Hadish Adi is in very close proximity with the church compound. The socio-economic situation assessment by WUB Consult records that buildings that are over 20 years old constitute 91.26% of building stock in the village (WUB Consult (d), 2010).



Figure 2 Tukuls in Hadish Adi

### 2.1.1 Typologies of traditional earth houses

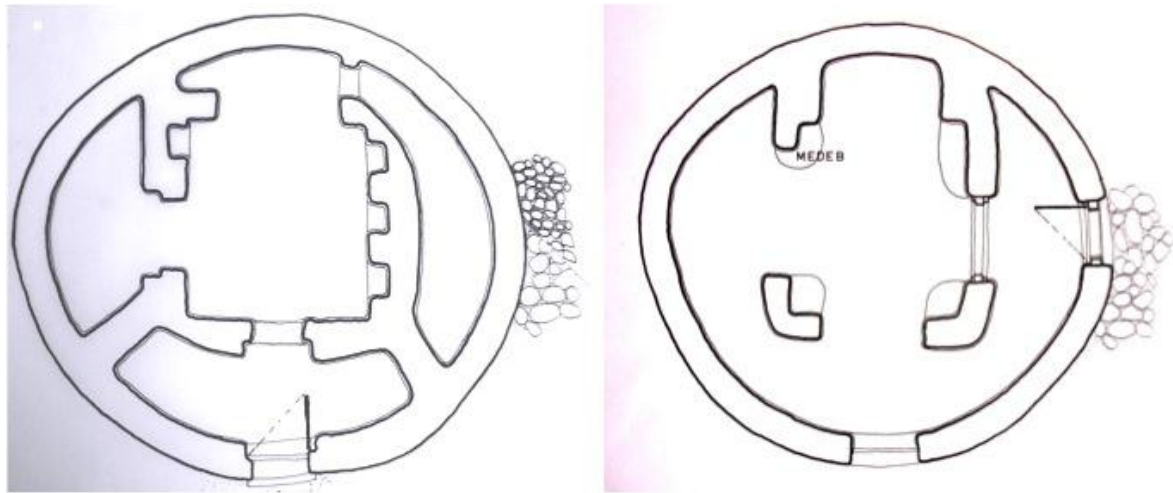


Figure 3 Ground and first floor plan variation of a circular tukul (courtesy ARCCH)



Figure 4 Unoccupied circular tukuls in church compound

The traditional housing of Lalibela is characterised by two main types of buildings: the circular one-storey *tukul* houses (ground and one floor), with external staircases leading to the upper level and the rectangular one-storey residences (ground and one floor). There are also circular single room buildings on only one level. In both cases, the walls are built of stone laid in mud mortar. The interior surfaces of the walls are often plastered with a rich mix of earth, straw and cow dung. The earth is mixed with straw from the teff plant (*Eragrostis tef*) and the mixture is applied to the wall after undergoing necessary processing. Sometimes cow dung is used almost completely on its own as a plaster for the internal and external wall surfaces.

In a 1970 study of the historic dwellings of Lalibela, Sandro Angelini describes the two types of vernacular housing that can be found in the area: the round 'tukuls', built in stone, and the circular earth (*chika*) buildings, which he refers to as 'poorer and deriving from forms' in the surrounding countryside. This second category of *chika* building is a round, single storey building of wattle and earth *chika* daub. His report also included an inventory in which the traditional buildings of Lalibela were placed in three categories, according to their state of conservation and for which he briefly

prescribes conservation measures.<sup>4</sup> He further goes on to identify the presence of rectangular buildings that had emerged as a result of ‘new economic rules’ and which were ‘irreversible’ in character (Angelini, 1970). Today, there are few new recently constructed traditional *tukul* houses around the protected areas. Angelini also built a house based on the traditional model in 1967, which he modified to include water areas. The building is still functional and occupied. The dominant housing types in Lalibela today are adapted from the traditional buildings. These are rectangular row houses with walls of wood frames (wattle) infilled with earth (daub) and covered over with corrugated iron roofs.



Figure 5 Remains of a square-shaped traditional building in church compound



Figure 6 Variation of traditional tukul building in church compound

The wooden poles used for the creation of the structural frames for the earth buildings are often eucalyptus trees, exotic trees imported into the region from Australia, under the reign of Menelik II in the late 19<sup>th</sup> to early 20<sup>th</sup> century. The apparent preference for this method over the stone buildings is most likely one of economic expediency. The continued use of the wooden poles and the accelerated rate of growth of the town also raise questions of possible deforestation, one that

<sup>4</sup> It was not possible to obtain this inventory that was an annex to Angelini’s report.

is being addressed by the Municipal authorities in its current master plan. Possible termite attack of the wooden frames, buried directly in the ground, cannot also be ruled out.

The use of stone in the construction of new building walls is increasingly restricted to the base of the building, where it is applied as a protective cladding for the lower levels of the timber frames. Rough and undressed stones continue to be used for compound fences. This reduced application of stone is most likely due to economic reasons. The cost of stone buildings is affected by two main conditions:

- (i) the cost of dressing the stones and
- (ii) the time needed to raise the building, which requires more skill than that needed for the earth buildings.

A small earth building of 10m<sup>2</sup> can be raised in two weeks: from the time of the laying of the poles and the roof to the application of the first layer of earth on the walls. Unskilled labour can be used to fill in the wooden frame, at a cost of 20 Birr (1.25 USD) per day, which represents the lowest prices obtainable. This type of labour is available from farmers in between the planting season. More skilled labour is required for good quality plaster work on the earth walls and costs in this case can go up to 50 Birr (3.62 USD) per day.

### **2.1.2 State of conservation of traditional earth buildings**

The ensemble of the WHS of the Laibela Rock-Hewn Churches was inscribed on the basis of justification of criteria (i), (ii) and (iii). Criterion (iii) especially refers to the traditional architecture of the site as providing a contextual background for the World Heritage property. The description and inventory of the WHS, as listed in the nomination dossier, clearly includes the traditional buildings which “aesthetically, technically or socially speaking ..... represent a valueable neighbourhood to the churches”<sup>5</sup>. Thus the site would be incomplete without these buildings.

Adequate care should be taken to guarantee the integrity of the WHS site by ensuring that the traditional earth architecture, which formed an integral part of its nomination to The List, is conserved. Development and population pressure are the biggest threats faced by the traditional architecture of the WHS. Economic conditions often force people to methods of construction, different from the traditional methods, to meet their accommodation needs. Over crowding in Hadish Adi makes it difficult to appreciate the beauty of some of the older buildings.

Overall, there is strong evidence of a continuing tradition in earth architecture, a tradition that is continually evolving in terms of methods and materials. Thatch has been replaced by corrugated iron sheets and the stonewall structure by a wooden bearing structure covered in earth (wattle and daub).

## **2.2 Urban Characteristics of the World Heritage property**

The settlement and housing issues on the World Heritage Site and its buffer zone are mostly those related to urban pressure and the attendant challenges associated with population growth.

Lalibela town is approached from the airport by a winding road through the surrounding hills in the countryside. With an estimated population of over 34, 029, Lalibela is organised into administrative units headed by a mayor, having attained municipal status in 2007. The basic administrative unit is a *kebele* (ward) and there are two urban *kebeles* and three rural *kebeles* in Lalibela.

There are signs of ongoing construction work all over the town, from road construction to drainage and housing construction. Recent projects by the Government of Ethiopia (GoE) and various international development partners have resulted in an upsurge of construction activities in and

<sup>5</sup> Nomination dossier, text on annex photo to dossier, 17

around the site. This upsurge has also invariably provided an opportunity for the development of an urban development master plan for Lalibela with clear demarcation of the protected areas.

Considering the matter of vistas, the maintenance of a strict code on development and housing stock will go a long way in ensuring the maintenance of the urban integrity of the Lalibela landscape which is one of its biggest selling points. The soon-to-be promulgated local development plan for Lalibela makes provisions for the control of building heights according to topographic conditions, to ensure that the vistas of the site are not disturbed by tall buildings intruding into the skyline. Prior to this time, there have however been a few previous developments that have clearly intruded on the skyline.

Lalibela consists mainly of dispersed settlements that spring from a central node around the churches and spreads out into the surrounding country side, most of which is not built up due to the nature of the topography. About 80% of the buildings around the churches, and in outlying areas, are made of earth, in different combinations with wood and stone. Most of these buildings have galvanised iron roofs irrespective of the material of wall construction. The older sections of the town can be clearly marked out by the colour of their iron roofs that have been oxidised and have changed colour. There are very few private residences built in concrete blocks. One of the dominant challenges in the residential areas around the church is that of human waste disposal. 74.8% of the houses in Hadish Adi do not have toilet facilities (WUB Consult (c), 2010), and this leads to the use of the open areas around the village as toilets. This greatly diminishes the experience of the site, especially during viewing from the top of the Sebat Woyra (Seven Olives) Hill.



*Figure 7 New buildings around Lalibela*

The churches form the focus of the Lalibela human settlement. The church compound was demarcated by a stonewall in 1984, and occupies an area of 25 hectares of which 40% were occupied by non-church activities, including 258 households. These households contained a total of 1,300. The 1999 master plan of Lalibela has been adhered to by the Municipal authorities and has restricted any further developments in the church areas and the designated buffer zones (Berhanu, 2009).

As part of the development planning process for Lalibela town, WUB Consult carried out an independent demographic and housing survey that established that the housing stock of Lalibela town consists of 3,975 housing units. 75.6% of these housing units are made of earth and wood. Stone and earth buildings make up 16.3% of the total housing stock of Lalibela. The number of thatch roofs had also decreased from 30% in 1994 (recorded from the population and housing

census) to 13.3% in 2009<sup>6</sup>. This remained the observation at the time of the mission. Most new stone construction is taking place around the investment interests of hotel developments – in the context of reinforced concrete structures and stone clad walls.



Figure 8 Urban sprawl of Lalibela, viewed from the Sebat Woyra Hill

New buildings can be observed outside the central core, built wholly of modern materials and usually of administrative, institutional or commercial nature. There are also several temporary structures (steel boxes) that line the main streets and are used for commercial purposes.

Most of the traditional buildings belong to private individuals. However some of the buildings belong to the local government, having been acquired during the nationalisation process of the 1970s. This led to a situation in which single-family *tukuls* became home for two families, with one on either floor. With the average *tukul* ranging in diameter from 3.5m - 6m in diameter the pressure on housing resources were increased. Data from Wubshet Berhanu's 2009 ESTDP (derived from the Lalibela Town Municipal Services Office report of 2001) resettlement policy framework report show that over 50% of the houses in the church compound were on plots of less than 50m<sup>2</sup>, often representing the area occupied by the house itself.

Households displaced from the church compound have each been given 150m<sup>2</sup> plots, irrespective of the size of the plot at their former area of residence, in the new areas. In addition a lump sum of money, representing the worth of the property in the former area is disbursed to the beneficiaries, to enable them build up the new site. The provision of larger plots for many of the former inhabitants of the site also opens up the possibility for them to provide vegetable gardens that, in no small way, aids in improving the family diet.

### **2.2.1 Ongoing changes and projects affecting the Lalibela urban landscape**

There were several projects going on in Lalibela at the time of the visit, as part of the implementation of national and international development projects. Few residential buildings in Lalibela, as at this date, are built in concrete. One of the reasons for this is that the cost of concrete blocks is high, often up to 14 Birr per block. This was explained by the fact that the blocks come

<sup>6</sup> This information was obtained from the WUB Consult 2010 report on the Lalibela Town development project.

from a nearby town where they cost far less but the cost increases with transportation into the town. In a town where the economic challenges to the population are high, this can be very well understood.

The current drive by the multi lateral programmes that are currently underway is aimed at addressing these socio-economic challenges. This invariably could create a situation in future that improved economic conditions might also lead to increased desire for ‘modern’ concrete houses. This is where the danger lies. If the earth houses are viewed as unsanitary or unable to allow for the conveniences of modern life, people will need little motivation to switch over once their economic bases are improved.



Figure 9 Ongoing development project in Lalibela (L) shelter construction in park (R) drainage construction, July 2010

A major development project currently underway in Lalibela is the World Bank-financed Ethiopian Sustainable Tourism Development Project whose main objective is to alleviate poverty through the sustained implantation and development of a vibrant tourism sector in Ethiopia. Lalibela is one of three project sites: the others being Axum and Addis Ababa. One of the three project components, destination development, has triggered involuntary resettlement as a result of its requirement for the rehabilitation of heritage sites and the enhancement of basic infrastructure. Prior to the take off of the ESTDP project, the Lalibela town administration, with the support from the Amhara National Regional State administration relocated 98 households from the church compound. This was an intervention initiated independently of the ESTDP by the town administration, and the consequent the resettlement activity was neither informed nor guided by the Resettlement Policy Framework or the Resettlement Action Plan of the World Bank project. The Terms of Reference for the resettlement have been issued and the final action plan is due for submission by the end of October 2010. The resettlement policy framework of the ESTDP recommends the demolition of over 200 households in Hadish Adi. It also recommends that certain buildings be conserved and adaptively reused as shops and offices.

### 2.3 Site management workshop

The UNESCO-WHC held a site management workshop, from 6 – 8 July and this provided an excellent opportunity for the mission to meet with many stakeholders who are closely linked to the site. This workshop took place within the framework of the “conservation Action Plan for the Lalibela Rock-Hewn Churches, Lalibela Phase II” with funds from the Norwegian Government and implemented under cooperation between UNESCO and the Ethiopian Authority for Research and Conservation of Cultural Heritage (ARCCH). Its main focus was to establish a committee to develop a site management plan as part of the strategy to strengthen the site management systems.

The discussions at the workshop touched on the following:

- The need to involve national professionals in any conservation work to be carried out at the

site.

- The need to move ahead in the conservation activities and ensure the completion of the conservation activities.
- The proposed intervention action and materials for the conservation of the churches were also discussed.

The workshop split up into working groups that each looked at the issues of: conservation, legal and policy frameworks and tourism that were the key issues to be considered in the management plan. The workshop also included a visit around the site to point out the effects of the ongoing projects on the World Heritage property. In conclusion of the workshop, a management planning technical committee was set up to complete a management plan for the site, working closely with the UNESCO consultant, Dr Abungu.

#### ***2.4 Meeting with local authorities and other stakeholders***

The achievement of the objectives of the WHEAP requires that all stakeholders be brought on board. The mission identified the key stakeholders and met with some of them.

A meeting was held with the Mayor of Lalibela (head of the Lalibela Municipal Council), Mr Mulugeta G/Medin, in his office. He indicated the commitment of the Council to the faithful implementation of the Lalibela Master plan as well as its encouragement of the continued use of local building materials and designs. The Master Plan generally refers to the Structure and Local Development Plan Project of Lalibela Town, a project of the Government of Ethiopia. Three volumes touching on the socio-economic, urban situation and time-space development, as well as supporting documents, have been prepared by WUB Consult, in partnership with the Municipal Council and the final government approvals were yet to be passed as at the time of the mission. Careful attention is to be paid to the respect for cultural norms in the protected zones, in line with the requirements of international regulations. He also explained that in the redevelopment plan for the areas from which people were being resettled, preference would be given to displaced persons in the allocation of the re-adapted spaces.

The overall conservation of the Lalibela site is the responsibility of ARCCH, the national heritage institution. ARCCH is committed to ensuring the conservation of the traditional building heritage of Lalibela. The main thrust of their conservation programme is to identify the buildings that are representative of the architecture in the area, within the core zone, and ensure their conservation through an active re-adaptation for tourism and economic-generating purposes.

The ARCCH and Lalibela Municipal Council are committed to the implementation of the recommendations and prescriptions of the existing ESTDP project as well as to the international heritage conservation conventions to which Ethiopia is signatory. This involves the study of the old buildings that will in turn inform the selection of buildings that are to be conserved on the basis of typological representation in order to ensure that a wide array of architectural heritage is conserved to assure the historical 'footprints' of the Lalibela area.

The conservation action plan project has already identified a number of beneficiaries for the churches. The table below identifies the key stakeholders for the management of the broader landscape in which the churches are located.



Category	Description	Responsibilities	Interests/expectations
Community	Home owners/tenants	Continued conservation of the built heritage of Lalibela	<ul style="list-style-type: none"> <li>Improved living conditions</li> <li>Improved livelihoods</li> </ul>
Institutional	The Ethiopian Orthodox Church Lalibela	<ul style="list-style-type: none"> <li>Primary custodians of the main features of the WHS, the churches</li> </ul>	<ul style="list-style-type: none"> <li>Limit damages caused to churches by poor waste management in surrounding area</li> <li>Improved church surroundings, better lodging for monks and nuns</li> </ul>
Local Government	Lalibela Municipal Council	<ul style="list-style-type: none"> <li>Primary implementing arm of government policies at local level</li> </ul>	<ul style="list-style-type: none"> <li>Improved revenue from tourism receipts</li> <li>Improvement of infrastructural amenities for government</li> <li>To be able to exert political power on course of events</li> <li>In support of maintaining the landscape and its attributes</li> </ul>
Regional Government	Amhara regional office of culture and tourism	<ul style="list-style-type: none"> <li>Coordinates regional heritage matters under the federal system</li> <li>Coordinate with ARCCCH in management in the management of Lalibela</li> </ul>	<ul style="list-style-type: none"> <li>The effective harnessing of the cultural resources for the promotion of tourism and enhanced regional revenue</li> <li>Improved site conservation</li> </ul>
Federal Government	The Authority for Research and Conservation of Cultural Heritage (ARCCCH)	<ul style="list-style-type: none"> <li>Responsible, in coordination with regional and local governments, for the implementation of the management and conservation plan of the WHS of Lalibela</li> </ul>	<ul style="list-style-type: none"> <li>Interest in maintaining landscape as a cultural asset</li> <li>Improved site conservation</li> <li>Guidelines to ensure the effective management of the traditional buildings on the site</li> <li>UNESCO's primary contact for WHEAP</li> </ul>
	Ethiopian Ministry of Culture and Tourism	<ul style="list-style-type: none"> <li>Supervising ministry of the ARCCCH</li> <li>Ensures coordination between heritage management and tourism promotion</li> <li>Hosts the World Bank ESTDP programme</li> </ul>	<ul style="list-style-type: none"> <li>Primary interest is increasing tourism revenue Enhancement of national tourism receipts</li> <li>Has tourism in maintaining landscape as a tourism asset</li> </ul>
Research interests	Ethiopian Institute of Architecture, Building Construction and City Development, Addis Ababa University	<ul style="list-style-type: none"> <li>To develop effective architectural solutions to urban environments in Ethiopia</li> </ul>	<ul style="list-style-type: none"> <li>Mandate to provide adapted solutions to Ethiopian urban development</li> <li>Favours hands-on, applied research</li> </ul>
	Amhara Urban Planning Institute	<ul style="list-style-type: none"> <li>To develop and implement local development plans for better living conditions</li> </ul>	To be determined (TBD)
	Craterre-ENSAG	<ul style="list-style-type: none"> <li>Temporary secretariat of WHEAP and responsible for coordination of WHEAP activities</li> </ul>	<ul style="list-style-type: none"> <li>Research in earth architecture/construction</li> </ul>

Category	Description	Responsibilities	Interests /Expectations
Private sector/Civil society	Hotel Proprietors	<ul style="list-style-type: none"> <li>• Development of tourism facilities</li> <li>• Entrepreneurship</li> </ul>	<ul style="list-style-type: none"> <li>• Encouragement of traditional building models in hotel development</li> </ul>
	Non Governmental Organisations	<ul style="list-style-type: none"> <li>• Act as a bridge between government and civil society</li> </ul>	<ul style="list-style-type: none"> <li>• Identification and development of business skills in earth construction</li> <li>• Forestation and 'greening' programmes</li> </ul>
Development and International partners	UNESCO	<ul style="list-style-type: none"> <li>• Overall oversight responsibility for World Heritage Sites and programme coordination of WHEAP</li> </ul>	<ul style="list-style-type: none"> <li>• Successful implementation of WHEAP</li> </ul>
	World Bank	<ul style="list-style-type: none"> <li>• Fund and supervise the ESTDP project</li> </ul>	<ul style="list-style-type: none"> <li>• Major road construction in Lalibela</li> <li>• Enhancement of the quality and variety of heritage as a tourism product and services</li> <li>• Increased national foreign exchange earnings,</li> <li>• Job creation</li> </ul>
	CHDA	<ul style="list-style-type: none"> <li>• Responsibility for regional training activities</li> </ul>	<ul style="list-style-type: none"> <li>• Involvement in coordination of WHEAP activities in the Africa region</li> </ul>

### 3. Recommendations to conserve and enhance earth architecture as an important part of the World Heritage property of Lalibela

The various development projects underway in Lalibela could invariably create a situation in which improved economic conditions might also lead to increased desire for 'modern' concrete houses. This is where the danger lies. If the earth houses are viewed as unsanitary or unable to allow for the conveniences of modern life, people will need little motivation to switch over once their economic bases are improved.

The mission has identified the following key issues concerning earth architecture and the overall conservation of the site:

- Quality of earth housing stock
- Integration of sewage and drainage in the buildings
- Development of settlement plans that take into consideration the conservation of the churches
- Creation of sustainable livelihoods in earth construction
- Termite attack on wooden frames of buildings

These are strictly technical issues that must be taken into account when formulating the management plan for the site as well as in the development of a Lalibela-specific WHEAP project.

There is a need to improve on the existing earth buildings to ensure that they are conducive for the requirements of modern living and that there will be no detrimental changes in future, based on improved socio-economic situations.

The national and regional heritage conservation authorities must be fully committed to full involvement in the identification and documentation of buildings that need to be conserved.

There are definitely needs on the ground as well as expectations from the local community and the national and regional institutions. In view of ongoing actions, it is necessary to elaborate an action plan to ensure that there is a consolidation of efforts.

### **3.1 SWOT Analysis**

The resulting analysis of the strengths, weaknesses, opportunities and threats to earth architecture on the site are presented below.

#### **3.1.1 Strengths**

The continued use of earth as a building material allows for continued long term use of the material for the maintenance of the material character of the built environment.

The continued use of earth materials invariably means that there is a continuity of the necessary know-how for the perpetuation of earth architecture.

The fact that certain old buildings in Hadish Adi are still standing gives hope for documentation and informed decision making for conservation purposes.

#### **3.1.2 Weaknesses**

The lack of a functional site plan that makes clear demarcations and establishes the boundaries between the core zone, the buffer zone and the rest of the town makes it difficult to determine the extent of the built up area within the core zone.

There is insufficient documentation of the existing housing stock in the core and buffer zone. The typologies of earth buildings present in the protected area have yet to be fully known and documented.

#### **3.1.3 Opportunities**

The on-going ESTDP-related activities present opportunities that could be harnessed for the WHEAP, seeing as there are existing possibilities for interlacing activities related to the conservation of traditional architecture and the built environment around the churches (see Project no CS 1, CS 2, CS 5, P 5 in the ESTDP cultural and social safeguards plan for Lalibela)<sup>7</sup>. P 5 is a specific project for a survey of vernacular architectural heritage.

#### **3.1.4 Threats**

The resettlement and demolition programme going on in the church compound and that programmed for Hadish Adi could endanger some of the earth buildings, irreplaceable heritage resources.

### **3.2 Action Plan for WHEAP in Lalibela**

The action plan will be developed in line with the main thrust of the activities outlined in the WHEAP project document. An extract of the relevant section is included in Annex 4. The sharing of responsibilities has been left out of the action plan, and it is hoped that this portion can be completed in time after due deliberations with the various stakeholders.

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<sup>7</sup> CS1 - Enhancing and Redevelopment of the UNESCO World Heritage Site  
 CS2 – Buffer Zone Upgrading, awareness creation  
 CS5 – Identification of World Heritage Site boundaries  
 P5 - Vernacular architectural heritage survey

### 3.1.2 *In situ pilot projects*

WHEAP Activities	Lalibela-specific	Time Frame
Elaboration of conservation and management plans	Development of site management plan which makes provision for the inclusion of earth architecture	As outlined in relevant UNESCO programme document
Elaboration of land use plans and building regulations	<ul style="list-style-type: none"> <li>- Lalibela Master Plan (under way)</li> <li>- Need to include materials section specifying earth architecture</li> </ul>	9 months
Conservation projects for the historic part of Lalibela town	Development of a conservation programme for earth buildings in the protected area	TBD <sup>8</sup>
	Documentation and mapping of existing buildings	
On-site training for sites managers, technicians, craftsmen, tourism guides	Inclusion within the ESTDP project???? Training workshop	TBD
Elaboration of technical guides for restoration and rehabilitation	<ul style="list-style-type: none"> <li>- Development of technical specifications for conservation of old buildings</li> <li>- Identification and documentation of traditional earth construction practices and intangible practices</li> <li>- Improvement of existing housing stock and development of technical specifications for new earth buildings</li> <li>- Addressing thatch and roofing related matters for conservation of historic buildings</li> </ul>	TBD
In-situ experimentation	<ul style="list-style-type: none"> <li>- Design of different models of conservation techniques and earth buildings</li> <li>- Testing of design models</li> <li>- Testing of different composite systems of earth, stone and wood</li> </ul>	TBD

### 3.1.3 *Research*

WHEAP Activities	Lalibela-specific	Time Frame
Study analysis and synthesis of the factors affecting earthen architecture properties	<ul style="list-style-type: none"> <li>- Determination of evolutionary trends in earth architecture through survey</li> <li>- Projection of possible future trends</li> <li>- Evaluation of factors that affect conservation and development of earthen architecture</li> </ul>	TBD
Laboratory research on raw materials, stabilisation, quality control, damp migration, salts	<ul style="list-style-type: none"> <li>- Classification of local building soils</li> <li>- Identification of appropriateness of soils for different earth construction techniques</li> <li>- Determination of appropriate stabilisation methods for different techniques</li> <li>- Possible laboratory simulations of decay in local contexts</li> <li>- Evaluation of decay characteristics in old earth walls</li> </ul>	TBD
Applied research and documentation	<ul style="list-style-type: none"> <li>- Application of laboratory results on existing and new buildings</li> <li>- Design and test of building systems that include water spaces (kitchens, bathrooms)</li> </ul>	TBD
Experimentation using prototypes samples or other methods	<ul style="list-style-type: none"> <li>- Hands-on training workshops using derived prototypes based on laboratory tests</li> </ul>	TBD

<sup>8</sup> To be Determined

WHEAP Activities	Lalibela-specific	Time Frame
Thematic / Technical seminars with site managers and earthen architecture conservation specialists	- Hands-on training workshops using derived prototypes based on laboratory tests	TBD
Research activities in relation with the in-situ pilot projects	- Derivation of further research orientations based on observations from surveys	TBD

### 3.1.4 Training

WHEAP Activities	Lalibela-specific	Time Frame
Organisation of specialised courses	- Training in earth wall conservation methods	TBD
Thematic seminars	- Conservation of unique urban characteristics of settlements built in earth - Managing new developments in earth architecture settlements	
Assistance to Regional institutions in developing training on earthen architecture at different levels (vocational, basic, university, post graduate);	- Inclusion of participants from national and regional institutions in training and thematic activities - Development of training materials for national training institutions, possible application in the region	
Preparation of basic teaching material for dispatching to the UNESCO earthen architecture Chair network, including institutional embedment, specific training, insertion in curricula.	- Preparation of relevant section for inclusion in the larger context of a teaching manual for worldwide dissemination	

### 3.1.5 Promotion/Advocacy

WHEAP Activities	Lalibela-specific	Time Frame
Publication of a series of technical books on earthen architecture in general and on World Heritage Earthen Architecture in particular (management plans, preventive conservation, etc.)	- Publication of applied research results (Amharic a must) - Conservation results - Publication on technical issues	TBD
Publish promotional and awareness exhibitions and booklets; Support of educational and public awareness initiatives	- Publication of promotional materials on earthen architecture heritage of Lalibela for distribution to visitors	
Organisation of international meetings/conferences for Earthen architecture site managers; Support given to the organisation of regional and global conferences on earthen architecture	Organisation of at least one conference in Lalibela to present the results of WHEAP activities in Lalibela	

### **3.3 Recommendations for follow up work**

1. In cooperation with ESTDP, update the baseline of earthen architecture in Lalibela using satellite images. Comparison would be made with Angelini's 1970 report "Lalibela Project: Historic dwellings". This is relatively urgent given the resettlement plans of the ESTDP, in the drive to improve the site, and the risk that significant heritage might be lost in the absence of a baseline. This is also of relevance to the management plan project. I suggest UNESCO communicate directly with ESTDP and ARCCH to follow up on this.
2. Coordination with the site management plan committee to ensure that the concern of WHEAP are given consideration in the final management plan.
3. UNESCO should promote inter-institutional cooperation and research with local partners, constitute a working group for the WHEAP in Lalibela and hold a small workshop in cooperation with the site management plan committee.
4. UNESCO to organize a follow up mission within the next 6 months, with an emphasis on the preceding three points. The objective would be to flesh out the action plan outlined in the this report

## **4. Conclusions**

The traditional domestic architecture of Lalibela remains an inextricable part of the Lalibela World Heritage Site, providing the perfect backdrop to the World Heritage property. It enhances the integrity of the site as well as completes the understanding of the link between the spiritual function of the monumental churches and the daily lives of the people that live in the community. It embodies a rapidly disappearing technical competence that needs to be conserved.

The continued conservation of the churches in Lalibela cannot be separated from the well-being of the community that continues to live around it. The built environment around the churches constitutes a fundamental part of the protected property. In keeping with the spirit of community development and the enhancement of the lives of the people in whose communities World Heritage properties are found, there is a need to work closely with the Government of Ethiopia and other partners to achieve this goal.

The protected area of the Lalibela Rock-Hewn Churches and its associated urban environment holds a great potential for the development and growth of earth architecture. The WHEAP must seize the existing opportunity of a high acceptance of earth architecture by the local population to collaborate to ensure that it remains relevant in the long term in ensuring the integrity of this World Heritage property.

The continued use of earth as a building material needs to be encouraged in its present form. Its continued use in the area is a clear indication of the fact that there exists abundant manpower and skills to ensure its perpetuity. These skills need to be built upon and encouraged at all levels of society.

## Annex 1 Map

This map is courtesy of the report “Terms of reference for the preparation of the resettlement action plan of the Ethiopian Ministry of Culture and Tourism” and is only here presented to give an overview of the Lalibela site. IT IS IN NO WAY A SUBSTANTIVE PLAN OF THE WORLD HERITAGE PROPERTY.



*NB: This map is not authorized. It portrays only approximate boundary.*

**Annex 2 Additional Photos**

*Figure 10 New earth buildings under construction in Lalibela*



*Figure 11 Traditional building as art workshop and study area for Lalibela clergy*





Figure 12 Street scenes in Hadish Adi. Note the state of conservation of the wattle and daub buildings



Figure 13 Stone wall laid in earth mortar



Figure 14 NGO building based on traditional model



Figure 15 Hotel Construction outside the protected zone. Note mixed use of stone and concrete



Figure 16 Sandro Angelini's 1967 tukul

### Annex 3 References

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## **Annex 4      Mission programme**

### **Sunday, 4 July**

Depart Paris (IO)

### **Monday, 5 July (Addis)**

Arrive Addis

Meeting at UNDSS

### **Tuesday, 6 July**

Depart for Lalibela

Participation in management workshop

### **Wednesday, 7 July**

Presentation at management workshop

Site visit

### **Thursday, 8 July**

Discussion with Mayor of Lalibela, Mr Mulugeta G/Medin

Visit to the Lalibela protected site and environs

### **Friday, 9 July**

Return to Addis

Meeting with Mr Alemayehu at ARCCH premises

### **Saturday, 10 July**

Wrap up meeting with Mr Nigussu and Mr Alemayehu

Meeting with Mr Getu Assefa (UNESCO Addis) and Mr Senishaw (ARCCH)

Return to Paris

**Annex 5      Contacts**

<b>Name</b>	<b>Designation/Affiliation</b>
Ato Jara Haile Mariam	Director-General, ARCCH
Bishop Abba Gebre Eyesus,	Head of the Lalibela Church
Mr Mulugeta G/Medin	Mayor of Lalibela
Mr Nigussu Damtew	Director, Conservation services ARCCH
Mr Alemayehu Geberwold	Architect and team leader, ARCCH
Mr Getachew Senishaw	Director Intangible Heritage, ARCCH
Mr Betsiha Wolde	Surveyor, Municipality Land Management
Mr Mezemir Abiy	Amhara Regional Culture and Tourism Bureau
Mr Dereje Zerfu	Audio-Visual technician, regional office for culture and tourism
Mr Solomon Gebyahu	Director, Jerusalem Hotel Lalibela
Mr Messay Mekonna	Manager, Tukul Village Hotel Lalibela
Mr Mamo Getahun	Amhara Culture and Tourism Parks
<i>Follow up communication by e-Mail</i>	
Ms Yasmin Tayyab	Senior Social Development Specialist, World Bank Office, Addis Ababa
Mr Fasil Giorgis	Architect and Lecturer, Ethiopian Institute of Architecture, Building Construction and City Development

## **Annex 6 Report on the National workshop for the improvement of the Lalibela World Heritage Site's Management**

Ato Jara Haile Mariam, the Director-General of the ARCCH, made welcome remarks and talked about the importance of a plan to ensure the effective conservation and management of the Lalibela world heritage site. He also expressed a hope that the workshop would concretise the efforts of previous missions and workshops. He emphasised the need for this in view of the ongoing development work going on in the area and the need for the conservation plan to be taken into consideration.

The workshop was coordinated by Ms Nada al-Hassan of the UNESCO-WHC. The main thrust of the workshop was to consolidate an ongoing four-year activity on the development of a site management plan for the site. Dr George Abungu, Dr Elene Negussie Mr Stephen Battle of the World Monuments Fund (WMF) and the WHEAP consultant, Ms Ishanlosen Odiaua were external facilitators at the workshop.

Ms Al-Hassan emphasised the need for the workshop to come up with concrete results that will culminate, in the near future, in a functional site management plan that will facilitate the management of the site as well as serve as a guide for any future developments in and around the site.

Dr Abungu's presentation gave an overview of the conservation process across Africa, as well as the different types of systems that have encouraged the conservation of heritage sites across the centuries. He cited some case studies in which he highlighted how the presence or lack of management plans were instrumental for the successful running of the site and its impact on the lives of the communities around the sites. He acknowledged the age-old traditions through which the Lalibela churches had been conserved hitherto, but pointed out that it is increasingly evident that the challenges faced today are very different and this will thus necessitate conscious planning to ward off negative impacts on the site. He also emphasised the need for the consideration of the intangible heritage that is also instrumental in the management of the site.

Dr Negussie reported on an earlier workshop on the site management workshop on methodology and research framework, held in October 2009, which had raised key issues to be considered in the development of a management plan.

Mr Stephen Battle reported on the work of the World Monument Fund (WMF) to ensure the conservation work on two of the churches, in the framework of the Lalibela conservation action plan. He gave a background to the WMF's work in Lalibela: inclusive of research, monitoring and documentation. He mentioned the need to move quickly to ensure that the conservation work could start on the selected churches. He also emphasised that the accord of all stakeholders was necessary for any work to start.

Ms Odiaua also made a presentation on her mission, with a brief introduction of the WHEAP programme and the expectations of the mission. She outlined the need for working with the community and the responsibility of all stakeholders in ensuring the conservation of the rich traditional architecture of Lalibela. She also called upon the assistance of the participants in identifying and discovering the tangible and intangible aspects of the building traditions.

## Annex 7 Extracts from WHEAP project document

### 3.1. Objectives

#### *Development objective:*

The project development objective is to improve the management and conservation of earthen architectural properties protected under the World Heritage Convention as an important tool for sustainable development.

#### *Specific objectives:*

The project will pursue the following specific objectives:

- Develop appropriate methods and techniques for improving the sustainability of the conservation and management of the different types of earthen architectural heritage inscribed on the World Heritage List and/or included in States Parties' Tentative Lists;
- Ensure that best practices are broadly disseminated for practical application at properties protected under the World Heritage Convention, with ensuring benefits at the community level for the upgrading of the living conditions and contribution to poverty alleviation.

### 3.2. Programme orientations

The programme, designed for a period of 10 years, will have its activities implemented based on the following orientations:

- Contribution to sustainable development (social, economic, cultural) and poverty alleviation through enhanced use of earth building materials and valorisation of know-howholders, but also with reinforced and enhanced tourism potential;
- Development of a number of in-depth pilot projects at selected World Heritage and tentative list sites with all necessary long term follow-up and evaluation in all concerned regions of the world;
- Use of opportunities of cooperation agreements with State Parties developing conservation and research activities in the field of earthen architecture preservation;
- Consideration of the diversity of earthen architecture heritage in the programme implementation;
- Reinforcement of the local capacities within the communities with specific focus on valorisation of women and youths;
- Reinforcement of the capacities of the world' regional institutions to address the conservation problems facing earthen architecture heritage;
- Consideration of the fundamental role of scientific research and of the capacity of the UNESCO Chair;
- Establishment of links with regional initiatives such as Africa 2009, CentralAsianEarth and the ATHAR programme, and existing formal networks like PROTerra in Latin America;
- Establishment of links with initiatives developed in the framework of the UNESCO conventions on cultural diversity and intangible heritage.

### 3.3. Expected outputs

The programme will result in the following ten outputs by its conclusion in 2017:



- Identification and understanding of problems earthen architecture heritage is exposed to in the larger context of sustainable development;
- Definition of appropriate methods and techniques of interventions concerning earthen architecture;
- Development of guidelines and policies for the conservation, use or revitalisation and valorisation of earthen architecture heritage protected under the Convention;
- Preparation of land use plans, building regulations and technical specifications for the restoration of historic towns as well as for the inclusion of modern infrastructures;
- Preparation, and large diffusion of publications to promote earthen architecture and make widely available the results of the programme;
- Efficient protection and enhancement of at least 12 earthen architecture sites protected under the World Heritage Convention;
- Elaboration of management and conservation plans for at least 12 earthen architecture World Heritage Sites;
- Organisation of capacity building activities in earthen architecture conservation and management by regional training institutions (at least 6), including development of specific curricula for them;
- Involvement of trained national professionals and other skilled persons in the conservation and management of earthen architecture in all countries with earthen architecture sites;
- Setting-up of an active global network for exchange of information and experience.

### 3.4. Programme activities

The programme activities will be organized in four sectors:

#### 3.4.1. In-situ pilot projects

With the specific objective of developing “best practices” examples, the following activities will be implemented:

- Elaboration of conservation and management plans;
- Elaboration of land use plans and building regulations;
- Conservation projects for monuments, historic towns and archaeological sites;
- Conservation projects for sustainable tourism development;
- On-site training for sites managers, technicians, craftsmen, tourism guides;
- Elaboration of technical guides for restoration and rehabilitation;
- In-situ experimentation;
- Close follow-up of implementation with regular technical inputs.

#### 3.4.2. Research

Scientific research at laboratory level and applied research at site level will be essential in assessing and elaborating the knowledge on the behaviour and conservation of earthen architecture heritage.

The following activities are to be implemented:

- Study analysis and synthesis of the factors affecting earthen architecture properties;
- Laboratory research on raw materials, stabilisation, quality control, damp migration, salts;
- Applied research and documentation;
- Experimentation using prototypes samples or other methods;

- Thematic / Technical seminars with site managers and earthen architecture conservation specialists;
- Research activities in relation with the in-situ pilot projects.

#### **3.4.3. Training**

The programme will increase opportunities for specialized training on earthen architecture conservation throughout the world addressed to artisans and to heritage professionals.

The following activities are expected to be organized:

- Organisation of specialised courses;
- Thematic seminars;
- Assistance to Regional institutions in developing training on earthen architecture at different levels (vocational, basic, university, post graduate);
- Preparation of basic teaching material for dispatching to the UNESCO earthen architecture Chair network, including institutional embedment, specific training, insertion in curricula.

#### **3.4.4. Promotion / advocacy**

Promotion and advocacy activities will be organized with the idea of ensuring the recognition of earthen architecture, both at the international and national levels, but with a serious consideration given to local communities who, influenced by globalisation, often tend to loose confidence in their local architecture, know-how, skills and practices.

The following activities will be implemented:

- Publication of a series of technical books on earthen architecture in general and on World Heritage Earthen Architecture in particular (management plans, preventive conservation, etc.);
- Publish promotional and awareness exhibitions and booklets;
- Support of educational and public awareness initiatives;
- Organisation of international meetings/conferences for Earthen architecture site managers;
- Support given to the organisation of regional and global conferences on earthen architecture.